

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of		)
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	Yasuaki Hashizum et al.	)
		)
Serial No.:	10/598,856	) Art Unit
		) 2874
Filed:	September 13, 2006	)
		)
Confirmation No.:	1386	)
		)
For:	WAVEGUIDE TYPE VARIABLE OPTICAL	)
	ATTENUATOR	)

INFORMATION DISCLOSURE STATEMENT  
UNDER 37 C.F.R. § 1.97

Commissioner for Patents  
PO Box 1450  
Alexandria, Virginia 22313-1450

Sir:

Please find, pursuant to 37 C.F.R. § 1.98(a)(1), the enclosed Form PTO-1449 which contains a list of all patents, publications, or other items that have come to the attention of one or more of the individuals designated in 37 C.F.R. § 1.56(c). While no representation is made that these references may be "prior art" within the meaning of that term under 35 U.S.C. §§ 102 or 103, the enclosed listed references are disclosed so as to fully comply with the duty of disclosure set forth in 37 C.F.R. § 1.56.

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the enclosed art is the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art which is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

In accordance with 37 C.F.R. §§ 1.97 and 1.98, a copy of each of the listed references or relevant portion thereof that is not a US patent document is also enclosed.

Statement of Relevance of References Listed  
Unaccompanied by English Translation  
Under 37 CFR § 1.98(a)(3)

In accordance with 37 CFR § 1.98(a)(3), the following concise explanation of the relevance of each listed reference that is not in the English language and unaccompanied by a translation into English is provided.

Japanese Publication No. 2001-507817: An all-optical fiber switch is implemented within a short Mach-Zehnder interferometer (200) configuration. The Mach-Zehnder switch (200) is constructed to have a high temperature stability so as to minimize temperature gradients and other thermal effects which result in undesirable instability at the output of the switch. The Mach-Zehnder switch (200) of the preferred embodiment is advantageously less than 2 cm in length between couplers (230, 260) to be sufficiently short to be thermally stable, and full switching is accomplished by heavily doping one or both of the arms (235, 240) between the couplers (230, 260) so as to provide a highly nonlinear region within one or both of the arms. A pump input source (215) is used to affect the propagation characteristics of one of the arms to control the output coupling ratio of the switch (200). Because of the high nonlinearity of the pump input arm (281, 220), low pump powers can be used, thereby alleviating difficulties and high cost associated with high pump input powers.

Japanese Publication No. 2004-133389: **PROBLEM TO BE SOLVED**: To provide a polarization maintaining optical fiber coupler and its manufacturing method in which the manufacture is simplified and excess loss is reduced. **SOLUTION**: In the polarization maintaining optical fiber coupler 30, the ratio of the diameter of a core 21/the diameter of a clad 22 or the ratio of the distance between stress applying parts 23, 23/the diameter of the clad 22 in at least one of the polarization maintaining optical fibers 20 constituting a welded and drawn part 24 is larger than the ratio of the diameter of the core 21/the diameter of the clad 22 or the distance between the stress applying parts 23, 23 or the ratio of the distance between the stress applying parts 23, 23/the diameter of the clad 22 on the part which does not constitute the welded and drawn part 24 of the polarization maintaining optical fibers 20, and the stress applying parts 23, 23 are surrounded by the clad 22 in the welded and drawn part 24. Therein, the polarization maintaining optical fibers in which the distance between the adjacent outer peripheries of the two stress applying parts 23, 23 is  $\geq 20 \mu\text{m}$  are used.

Dated this 30<sup>th</sup> day of March 2007.

Respectfully submitted,

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